NEW PRODUCT NEWS

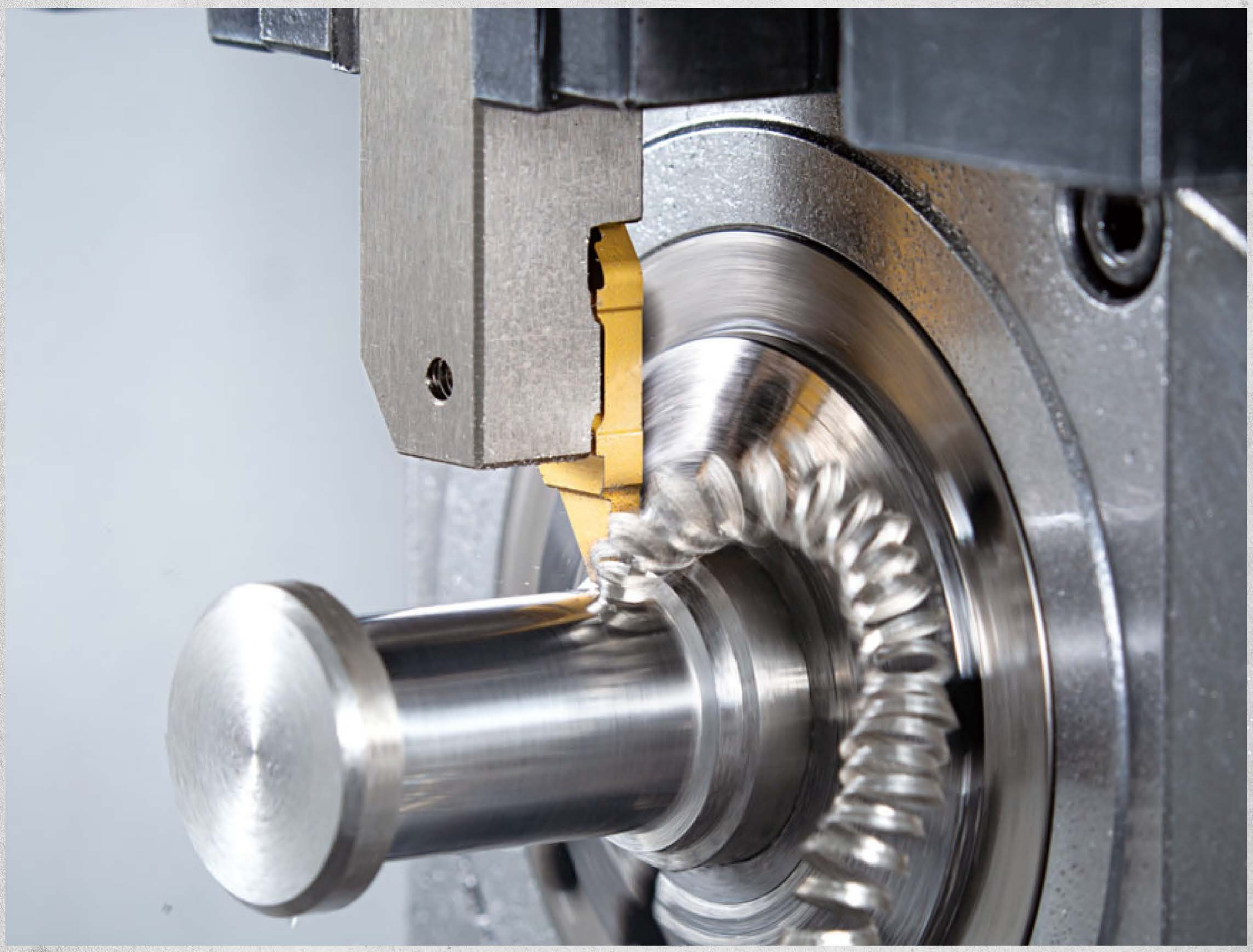
METAL WORK CO.,LTD

Tungaloy Report No. 556-G

Multifunction turning tools
for Swiss machines

DUOFORCE CUT

New insert lineups for back turning, grooving, and threading operations, expanding the multifunction turning tool series for various types of swiss machines



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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 556-G

MEGA TECH
METAL WORK CO.,LTD

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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 556-G

MEGA TECH METAL WORK CO.,LTD

DUOFORCE CUT

TUNGALOY ADDFORCE GROOVE
ACCELERATED PARTING AND GROOVING

New flexible tool series with unique insert clamping system

Ideal for machining small parts of 12 mm or smaller diameters

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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

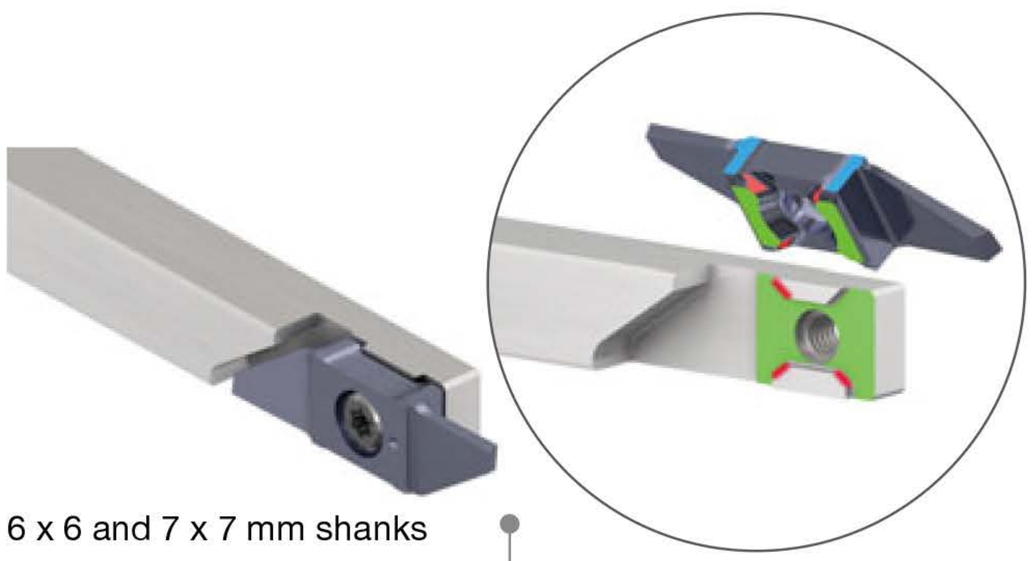
Tungaloy Report No. 556-G

MEGA TECH METAL WORK CO.,LTD

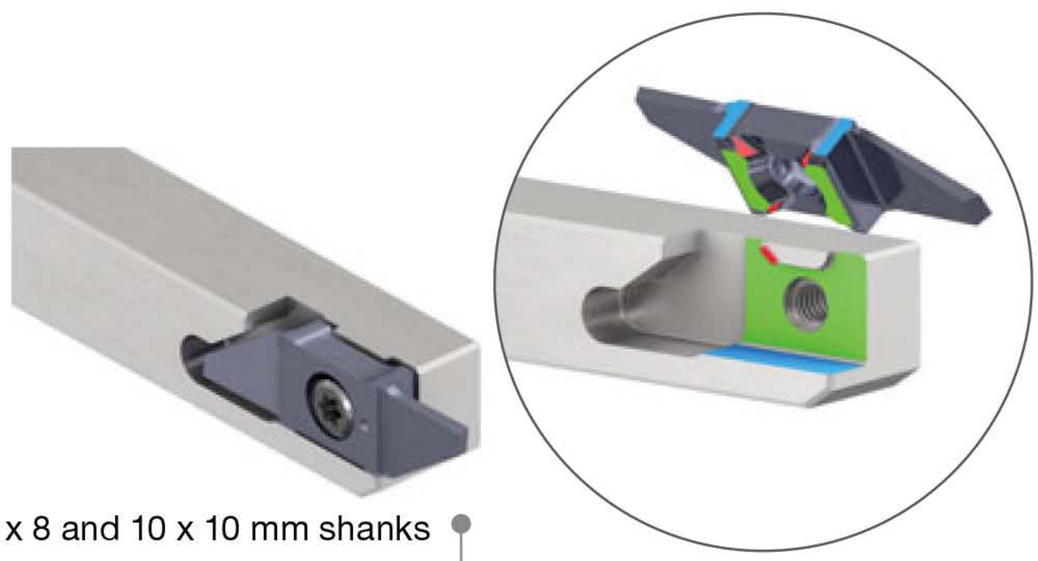
DUOFORCE CUT

Full lineup of shank sizes that can be used in cam-driven and CNC automatic lathes

- Minimum insert movement during machining thanks to the use of optimized screws
- Ground contact faces provide the insert with superior edge repeatability
- 6 x 6 to 10 x 10 mm shanks are available as standard
- Innovative insert clamping mechanism allows the use of the same insert with all toolholders of different sizes
- A flat toolholder design eliminates tool interference with the clamping unit, allowing free tool installations



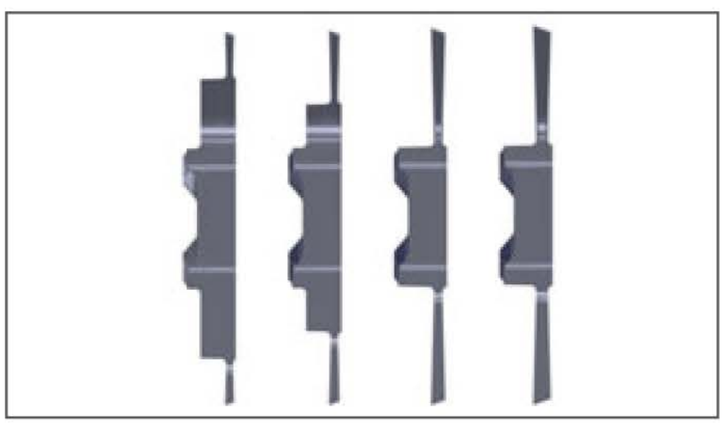
6 x 6 and 7 x 7 mm shanks



8 x 8 and 10 x 10 mm shanks

SAME INSERTS

For turrets with radial tool arrangements



Groove widths available from 0.5 to 1 mm

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TUNGALOY ADDFORCE ACCELERATED LINES

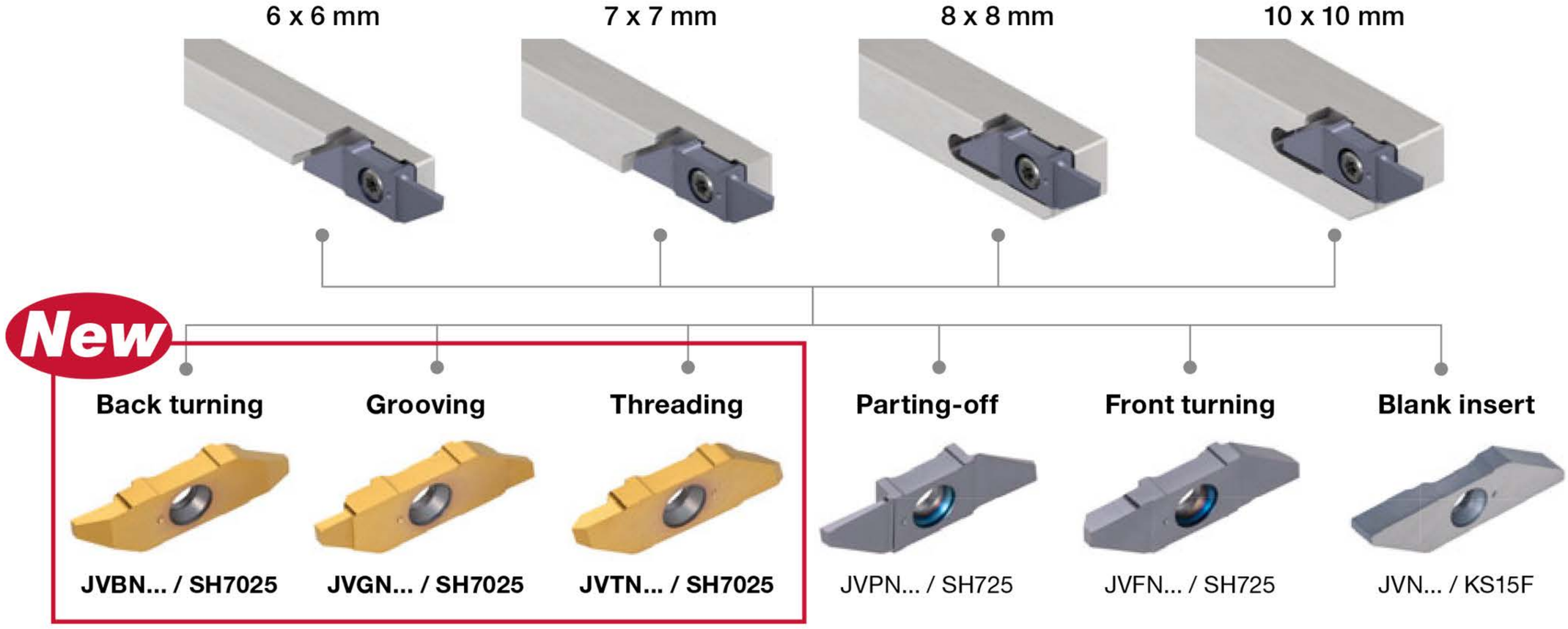
NEW PRODUCT NEWS

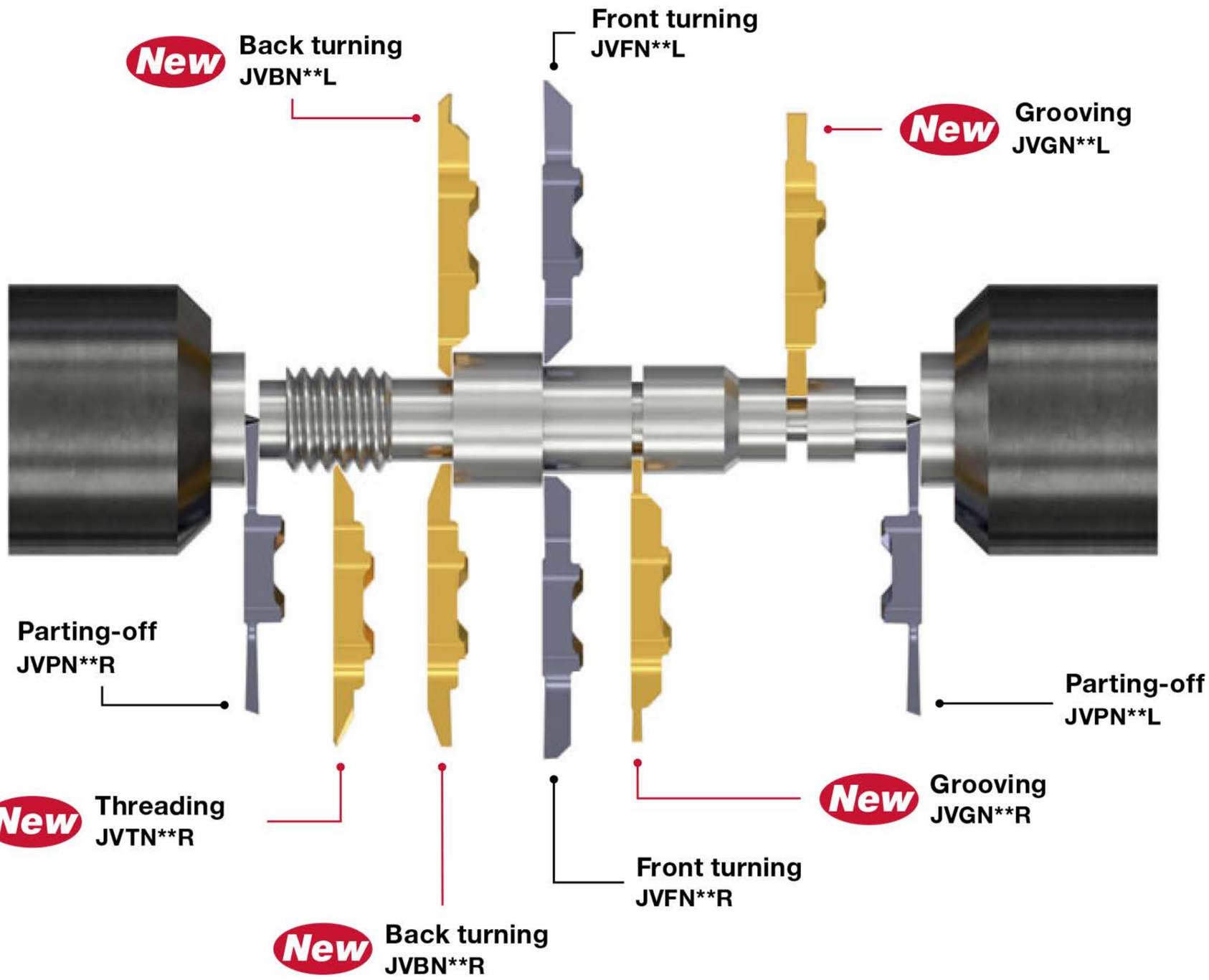
Tungaloy Report No. 556-G

MEGA TECH METAL WORK CO.,LTD

Inserts applicable for a wide range of applications

- Now offering the inserts for parting, front and back turning, groove turning, and thread turning operations
- Blank inserts are also available for customers to freely fabricate them into the desired groove profiles
- Even when the cutting edge is fractured during machining, the other unused cutting edge is securely protected by unique clamping system
- Right-hand & left-hand inserts





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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 556-G

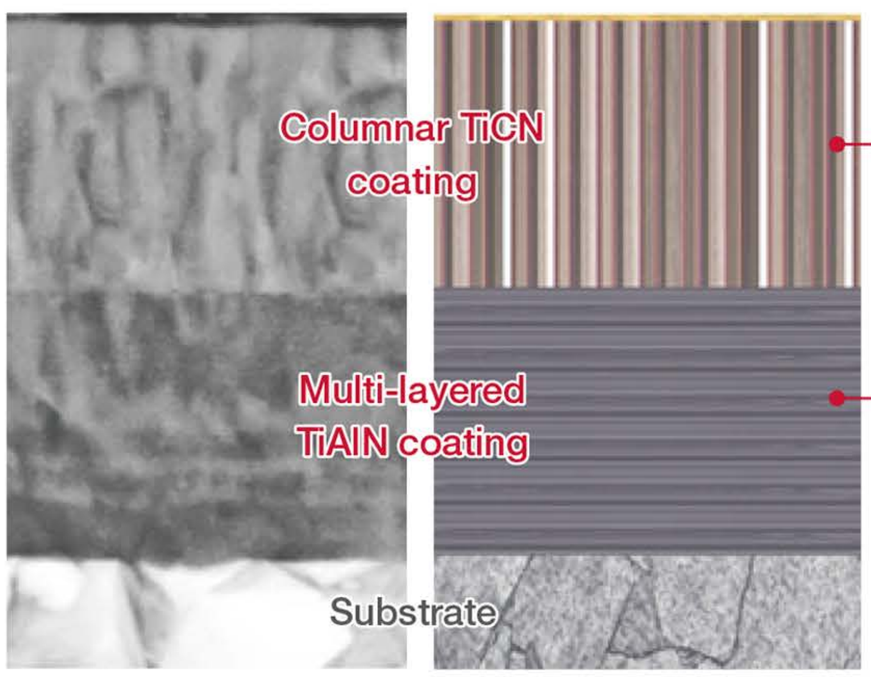
MEGA TECH METAL WORK CO.,LTD

DUOFORCE

SH7025 - the latest PVD insert grade for superior surface quality and process security

SH7025

- The latest grade with sharp cutting edge designed for small part machining.
- A combination of a columnar-structured TiCN coating and multilayered TiAlN coating provides superior surface quality and process security.



Cross sectional micrograph | Cross sectional diagram

For high surface quality

Built-up edge resistant TiCN coating improves surface finish quality.

For extremely long tool life

Wear-resistant columnar-structured TiCN coating ensures long tool life.

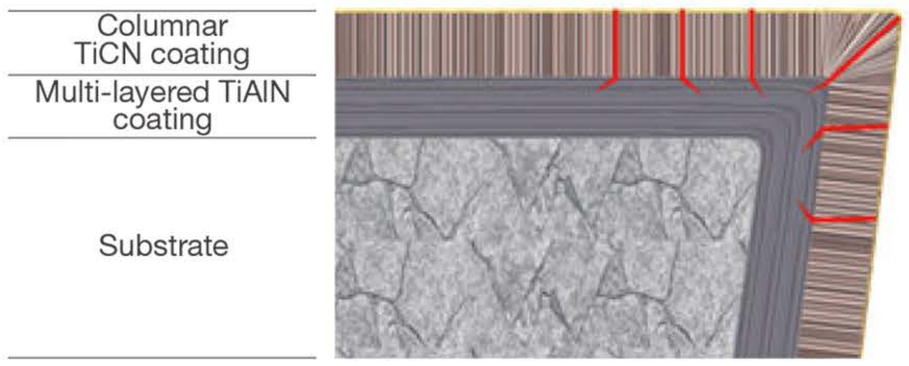
For superior process security

Chipping-resistant multi-layered TiAlN coating provides process security.

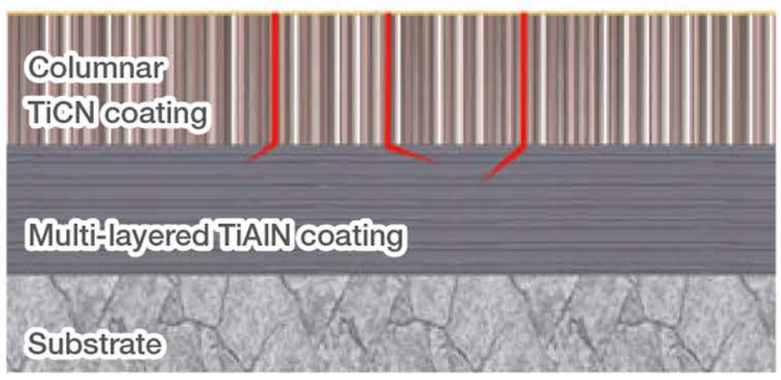
Superior process security

Chipping-resistant multi-layered TiAlN coating provides process security.

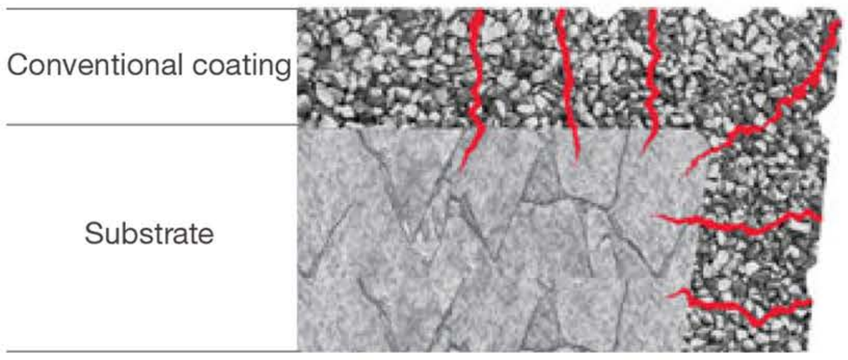
SH7025



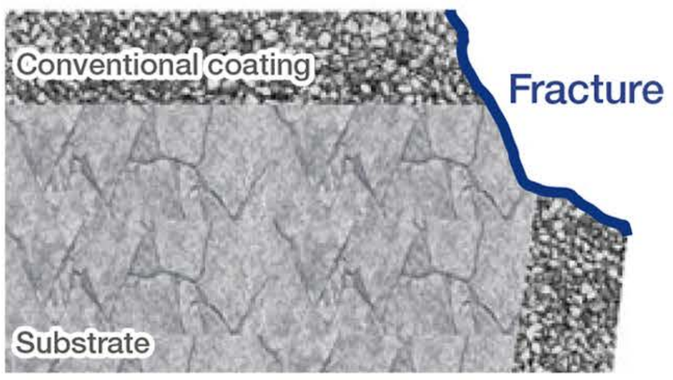
TiAlN coating prevents cracks from further propagation



Conventional



Crack reaches the substrate causing catastrophic failure



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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

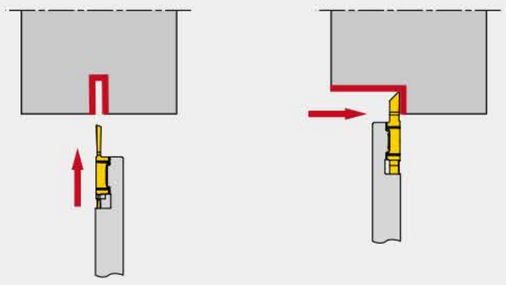
Tungaloy Report No. 556-G

MEGA TECH METAL WORK CO.,LTD

TOOLHOLDERS

JSXXR/L

Parting-off and front turning toolholders



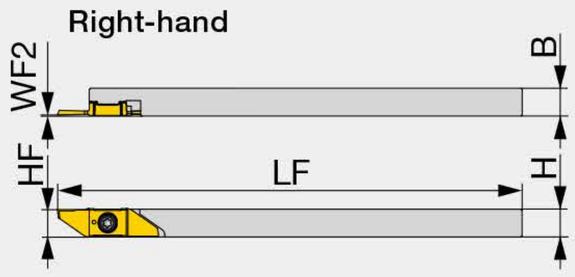


Fig. 1

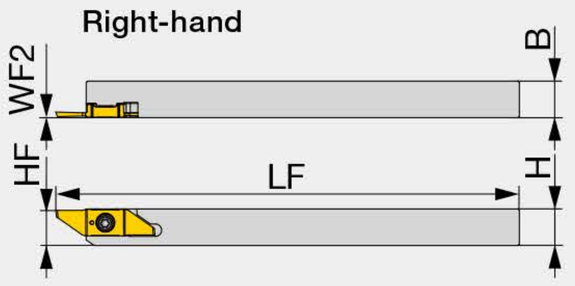
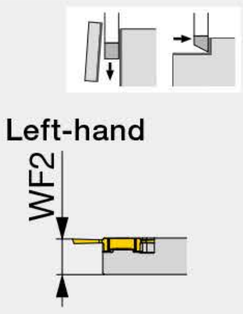


Fig. 2



Designation	H	B	LF	HF	WF(1)	Insert	Torque*	Fig.
JSXXL0606X05	6	6	120	5.6	5.8	JV*N..., JVN...	1.3	1
JSXXR/L0707X05	7	7	120	6.6	0.2/6.8	JV*N..., JVN...	1.3	1
JSXXR/L0808F05	8	8	85	7.7	0.2/7.8	JV*N..., JVN...	1.3	2
JSXXR/L0808H05	8	8	100	7.7	0.2/7.8	JV*N..., JVN...	1.3	2
JSXXR/L1010H05	10	10	100	9.7	0.2/9.8	JV*N..., JVN...	1.3	2

Torque*: Recommended clamping torque (N·m)
(1) The first value before "/" indicates the WF for the right-hand holder and the second value after "/" for the left-hand holder.
Note: Use the right-hand insert (JV****R...) for a right-hand holder (JSXXR...); the left-hand insert (JV****L...) for a left-hand holder (JSXXL...).

SPARE PARTS

Designation	Clamping screw	Wrench
JSXXR...05	CSTB-2.5L054DL	T-7F
JSXXL...05	CSTB-2.5L054DR	T-7F

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TUNGALOY ADDFORCE ACCELERATED LINES

INSERTS

DUOFORCECUT

New JVBN**R/L (Back turning)

Fig. 1

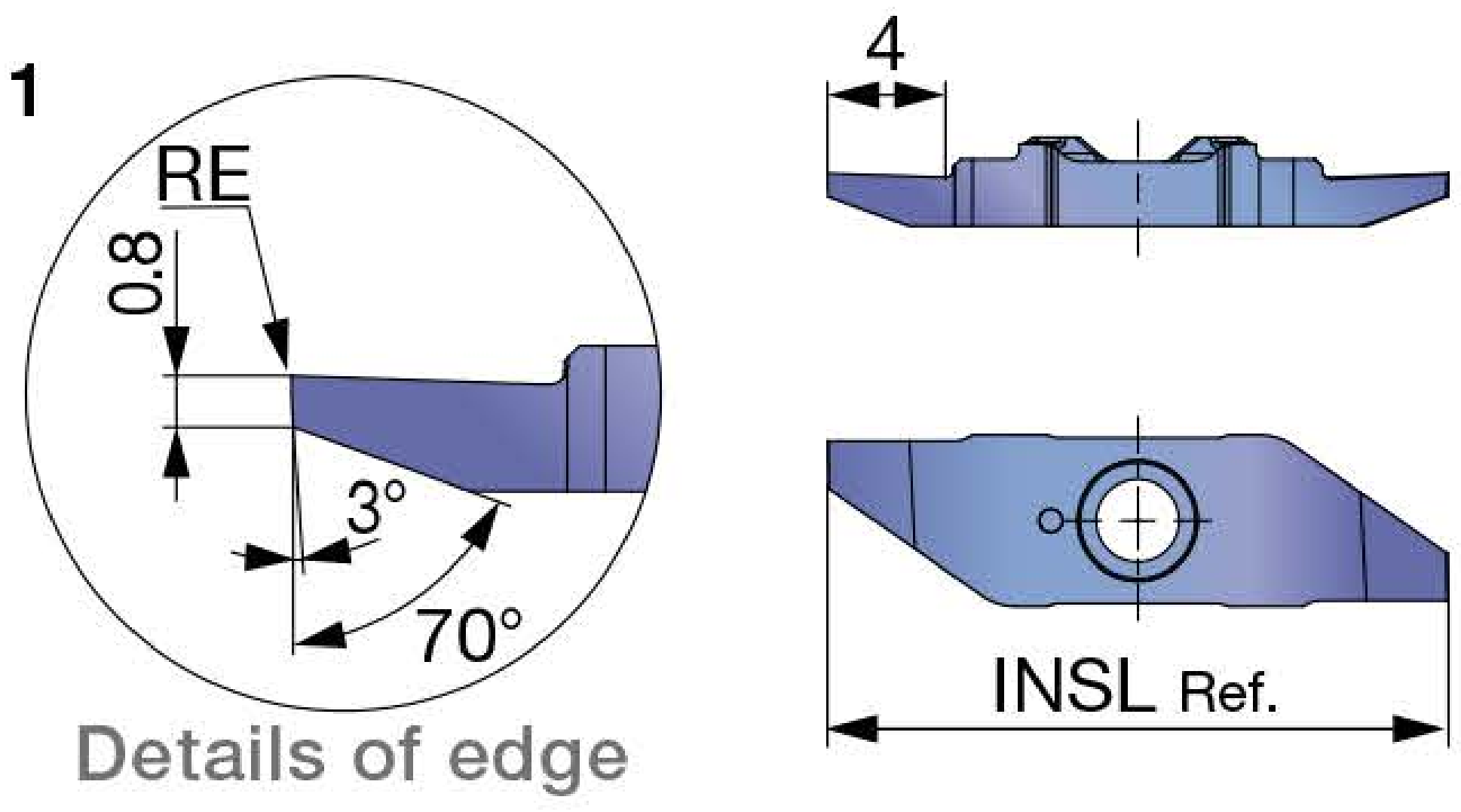
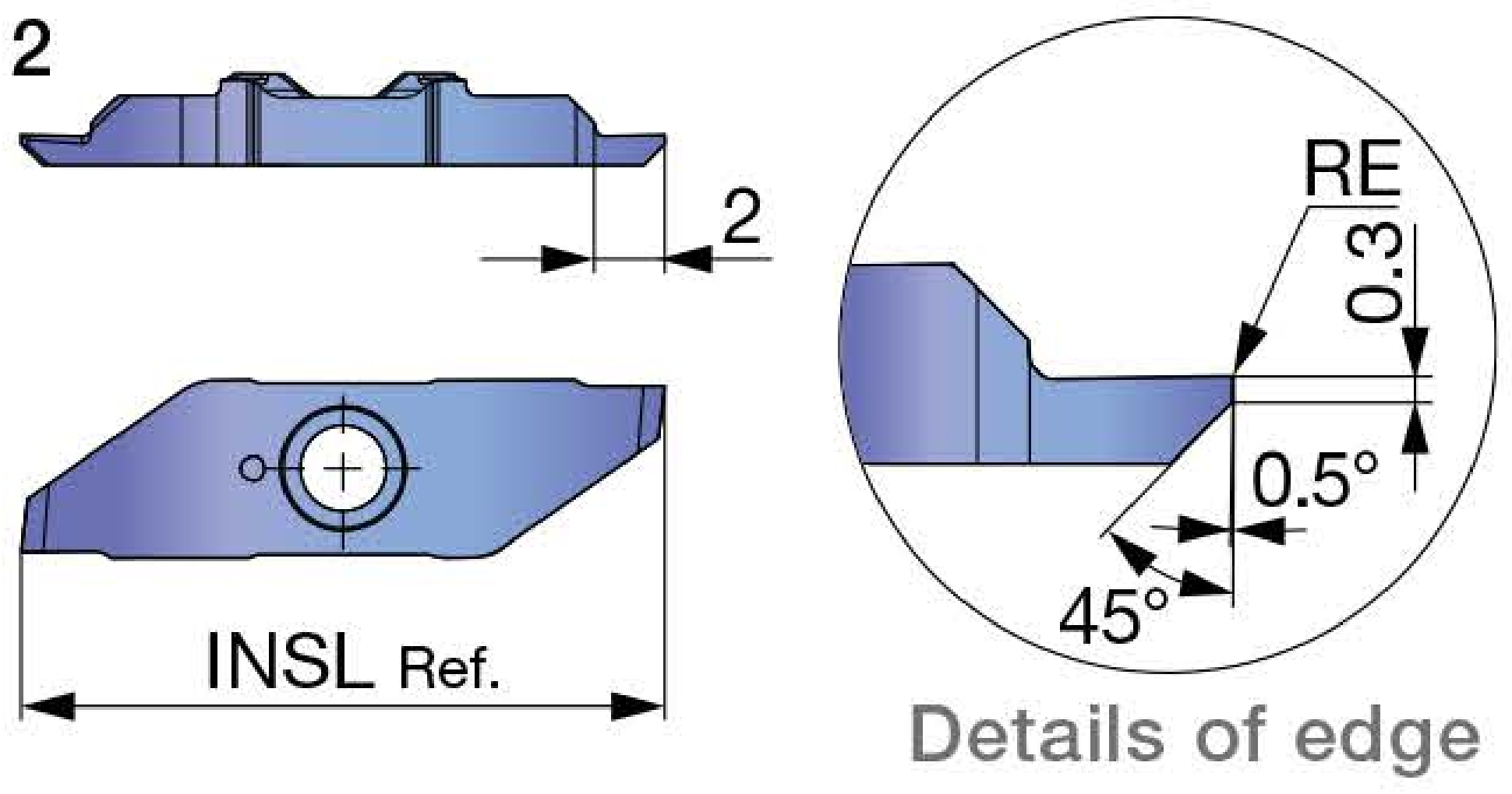


Fig. 2



		SH7025
P	Steel	★
M	Stainless	★
K	Cast iron	
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	

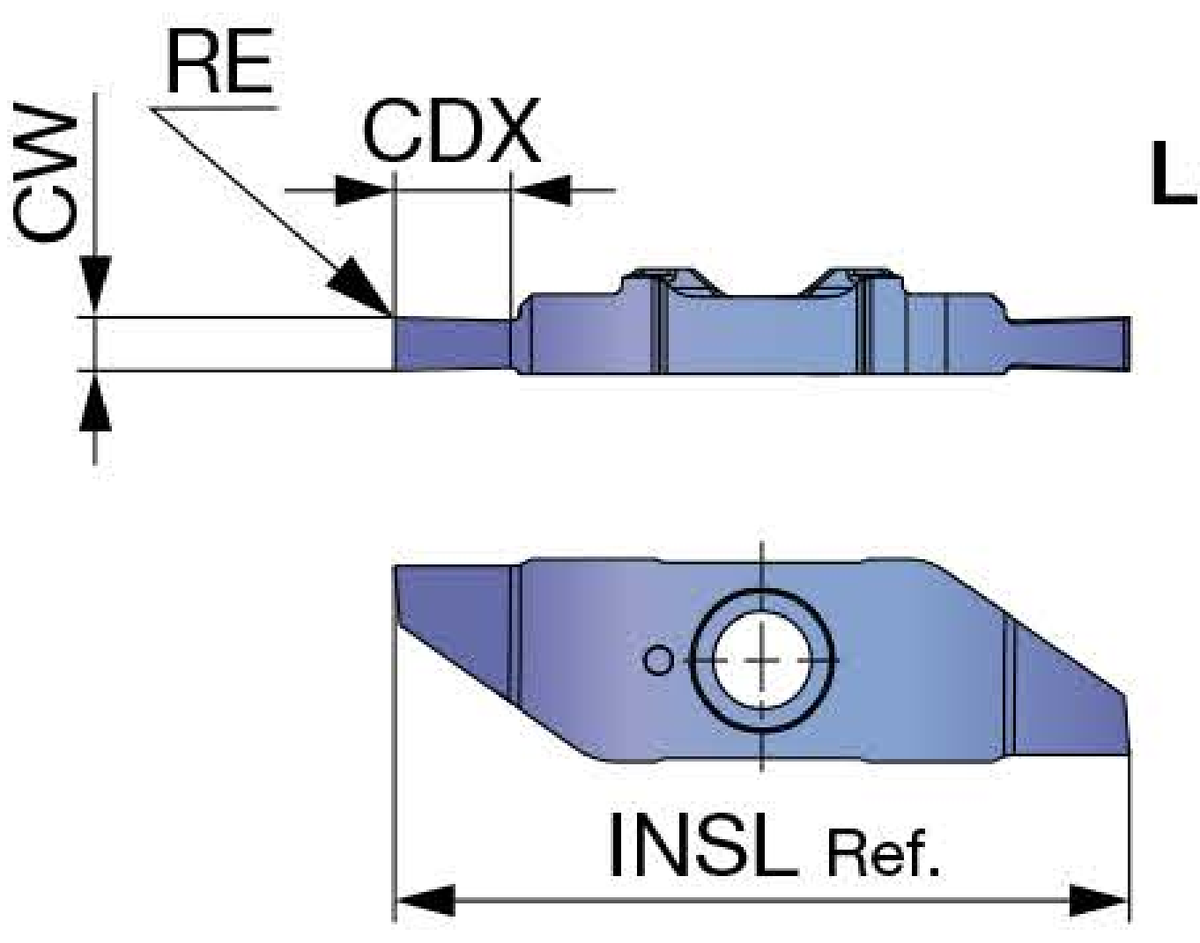
★ : First choice

Designation	Right hand	Left hand	RE	Coated	INSL	Fig
				SH7025		
JVBN70R0308F	✓		0	●	21	1
JVBN45L0310FL		✓	0	●	21	2

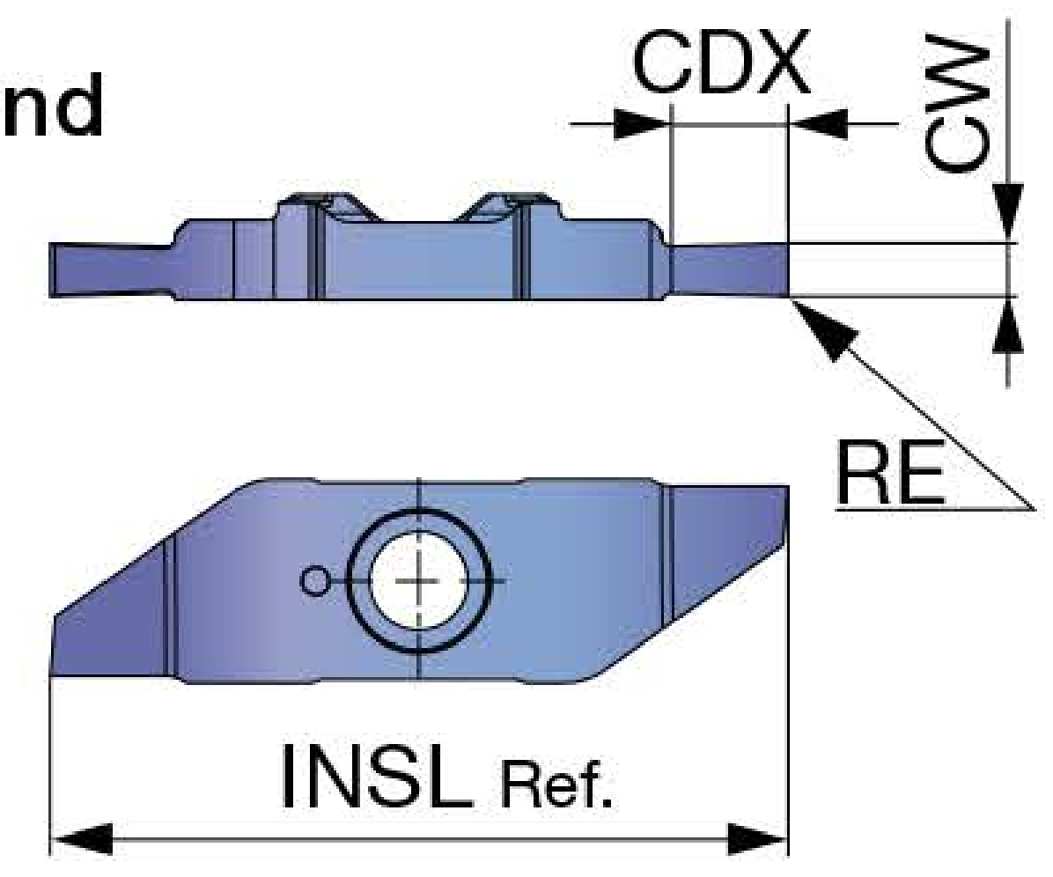
● : New product

New JVGN**R/L (Grooving)

Right hand



Left hand



		SH7025
P	Steel	★
M	Stainless	★
K	Cast iron	
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	

★ : First choice

Designation	Right hand	Left hand	CW	RE	Coated	CDX	INSL
					SH7025		
JVGN15R050F000	✓		0.5	0	●	1.5	21
JVGN15L050F000		✓	0.5	0	●	1.5	21
JVGN20R075F000	✓		0.75	0	●	2	21
JVGN20L075F000		✓	0.75	0	●	2	21
JVGN30R095F000	✓		0.95	0	●	3	21
JVGN30L095F000		✓	0.95	0	●	3	21
JVGN25R100F000	✓		1	0	●	2.5	21
JVGN25L100F000		✓	1	0	●	2.5	21
JVGN30R150F000	✓		1.5	0	●	3	21
JVGN30L150F000		✓	1.5	0	●	3	21

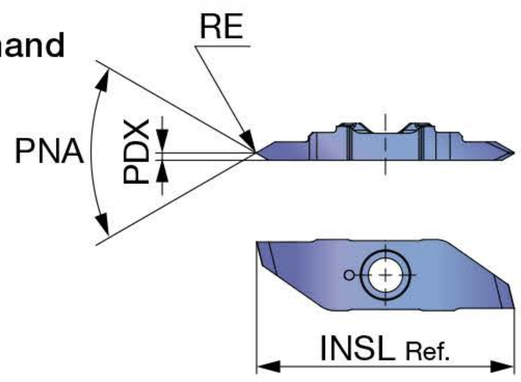
● : New product

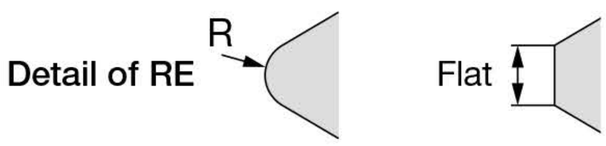
NEW PRODUCT NEWS

Tungaloy Report No. 556-G

MEGA TECH METAL WORK CO.,LTD

New JVTN**R (Threading)





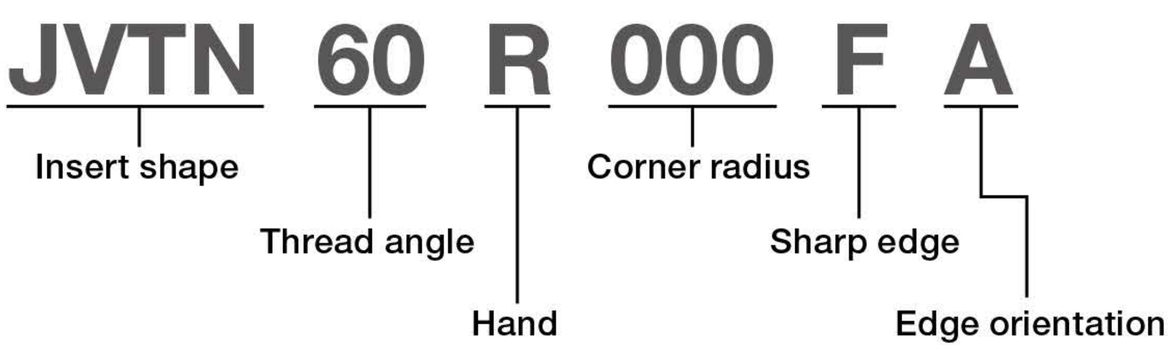
P	Steel	★
M	Stainless	★
K	Cast iron	
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	

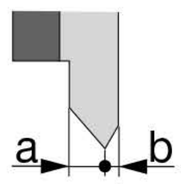
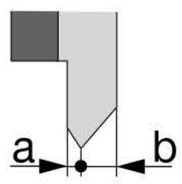
★ : First choice

Designation	Right hand	RE	Coated SH7025	Pitches	PDX	PNA	INSL
JVTN60R000FA	✓	Flat 0.05 max	●	0.2 - 0.4	0.25	60	21
JVTN60R005FA	✓	0.05	●	0.4 - 1	0.6	60	21
JVTN55R005FA	✓	0.05	●	0.6 - 1.5	0.8	55	21
JVTN60R000FB	✓	Flat 0.05 max	●	0.2 - 0.4	1.25	60	21
JVTN60R005FB	✓	0.05	●	0.4 - 1	0.9	60	21
JVTN55R005FB	✓	0.05	●	0.6 - 1.5	1.2	55	21

● : New product

EDGE ORIENTATION AND DESCRIPTION OF THREADING INSERTS



Edge Orientation	
Type A	Type B
	
a > b	a < b

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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

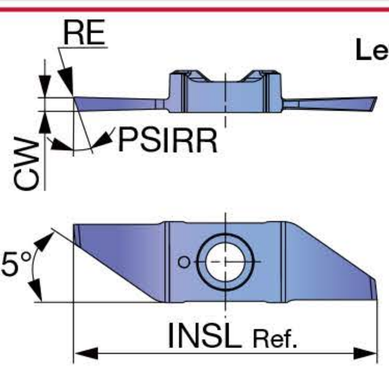
Tungaloy Report No. 556-G

MEGA TECH METAL WORK CO.,LTD

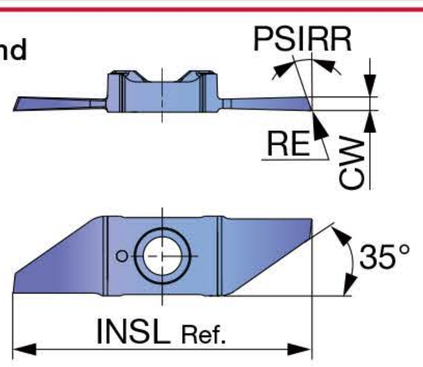
DUOFORCE CUT

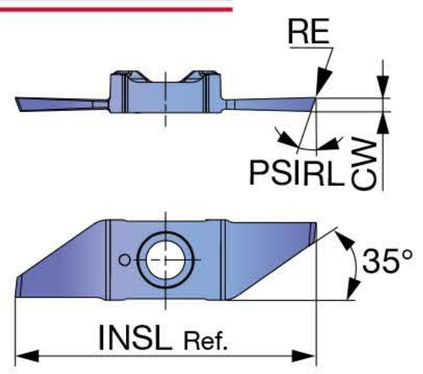
JVPN**R/L (For parting-off)

Right hand



Left hand

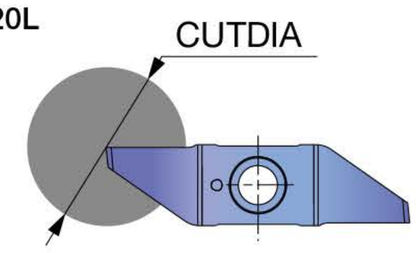




P	Steel
M	Stainless
K	Cast iron
N	Non-ferrous
S	Superalloys
H	Hard materials

★ : First choice

JVPN12L10F000-20L



Designation	Right hand	Left hand	CW±0.025	RE	Coated							CUTDIA	INSL	PSIRR	PSIRL
					SH725										
JVPN04R05F000-20	✓		0.5	0	●							4	21.4	20°	-
JVPN04L05F000-20		✓	0.5	0	●							4	21.4	20°	-
JVPN04R05F005-20	✓		0.5	0.05	●							4	21.3	20°	-
JVPN04L05F005-20		✓	0.5	0.05	●							4	21.3	20°	-
JVPN07R06F000-20	✓		0.6	0	●							7	21.4	20°	-
JVPN07L06F000-20		✓	0.6	0	●							7	21.4	20°	-
JVPN07R06F005-20	✓		0.6	0.05	●							7	21.4	20°	-
JVPN07L06F005-20		✓	0.6	0.05	●							7	21.4	20°	-
JVPN12R08F000-20	✓		0.8	0	●							12	21.6	20°	-
JVPN12L08F000-20		✓	0.8	0	●							12	21.6	20°	-
JVPN12R08F005-20	✓		0.8	0.05	●							12	21.5	20°	-
JVPN12L08F005-20		✓	0.8	0.05	●							12	21.5	20°	-
JVPN12R10F000-20	✓		1	0	●							12	21.7	20°	-
JVPN12L10F000-20		✓	1	0	●							12	21.7	20°	-
JVPN12R10F005-20	✓		1	0.05	●							12	21.7	20°	-
JVPN12L10F005-20		✓	1	0.05	●							12	21.7	20°	-
JVPN12L10F000-20L		✓	1	0	●							12	21.7	-	20°

● : Line up

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TUNGALOY ADDFORCE ACCELERATED LINES

JVFN45R/L (For front turning)

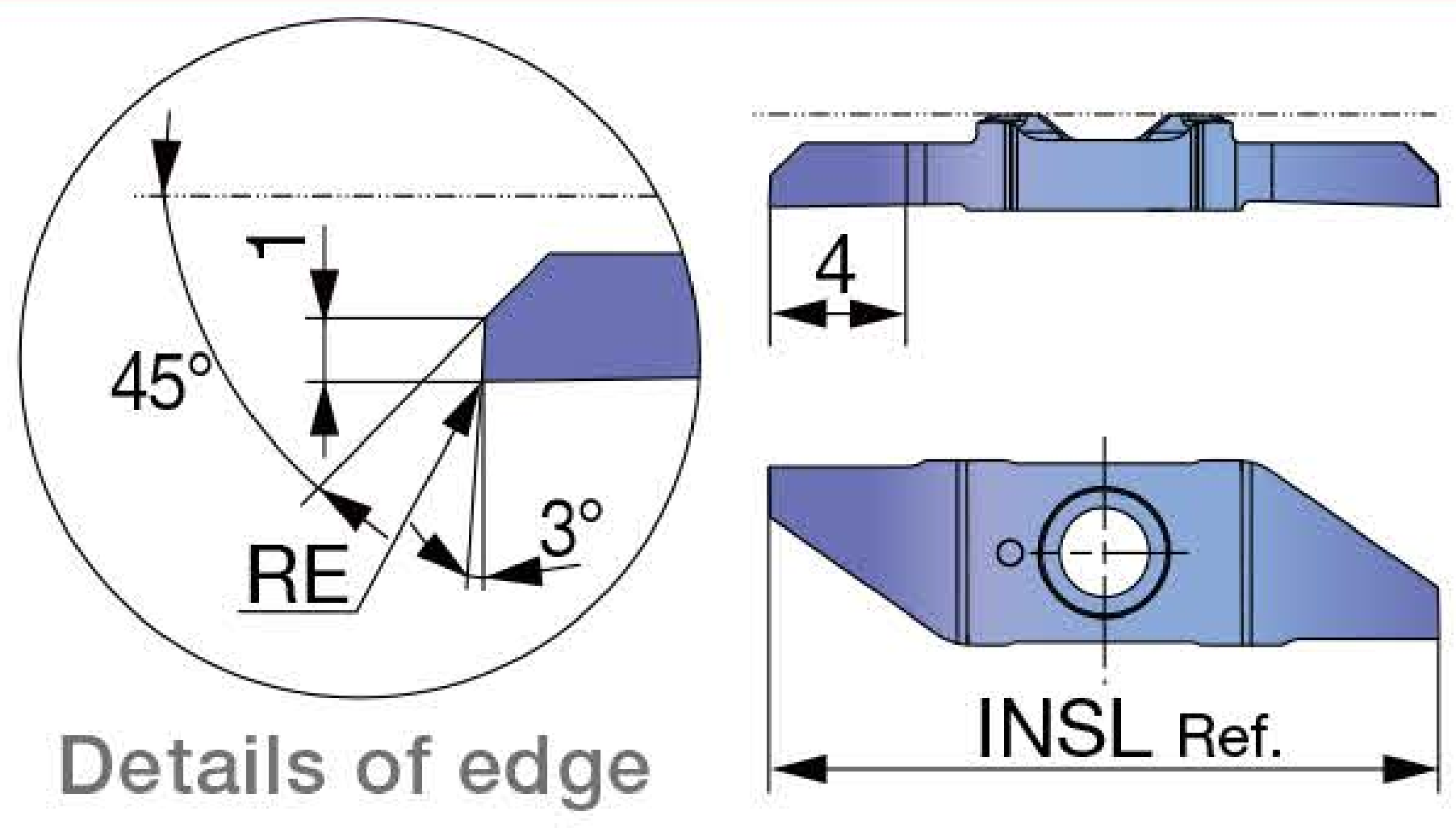


Fig. 1

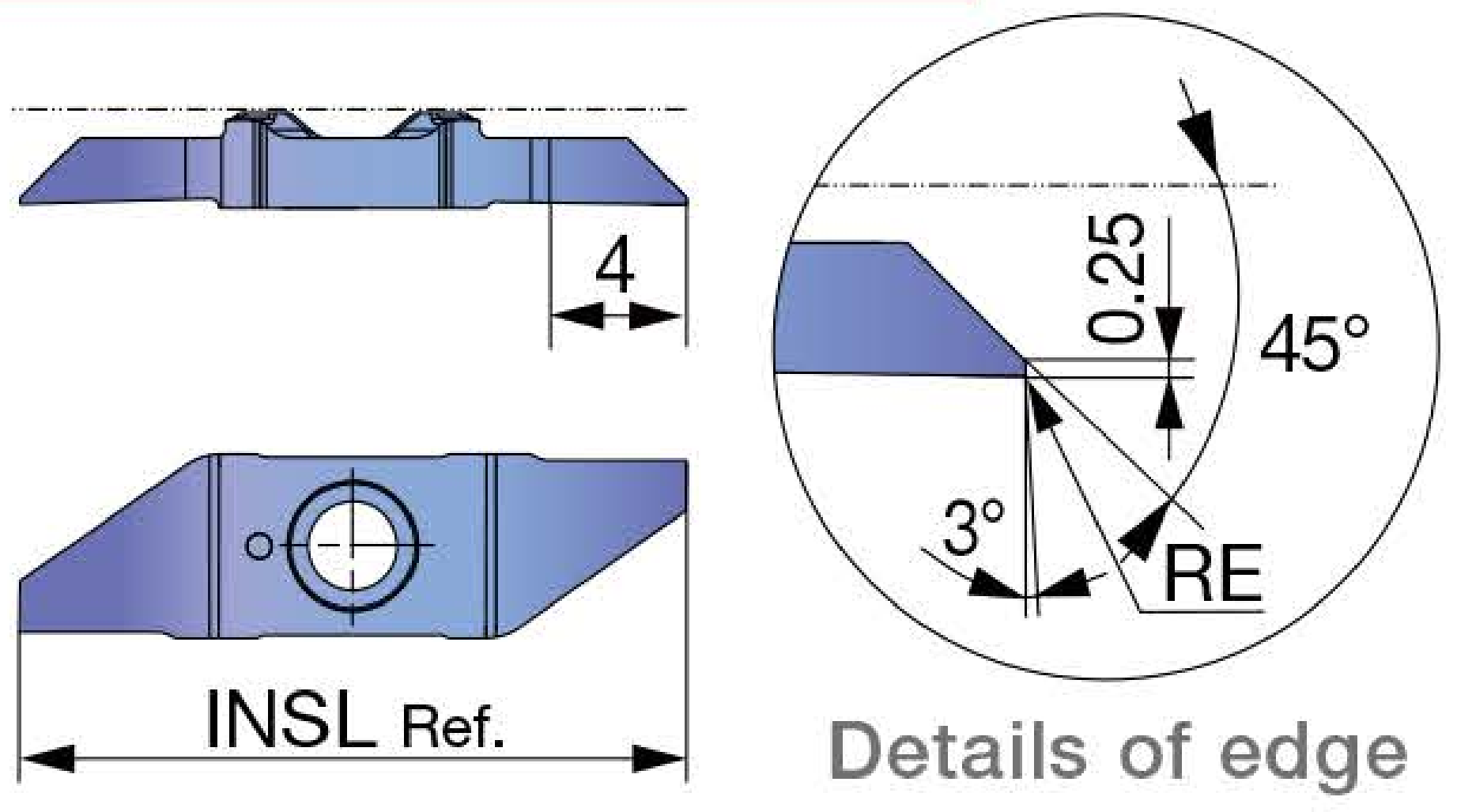


Fig. 2

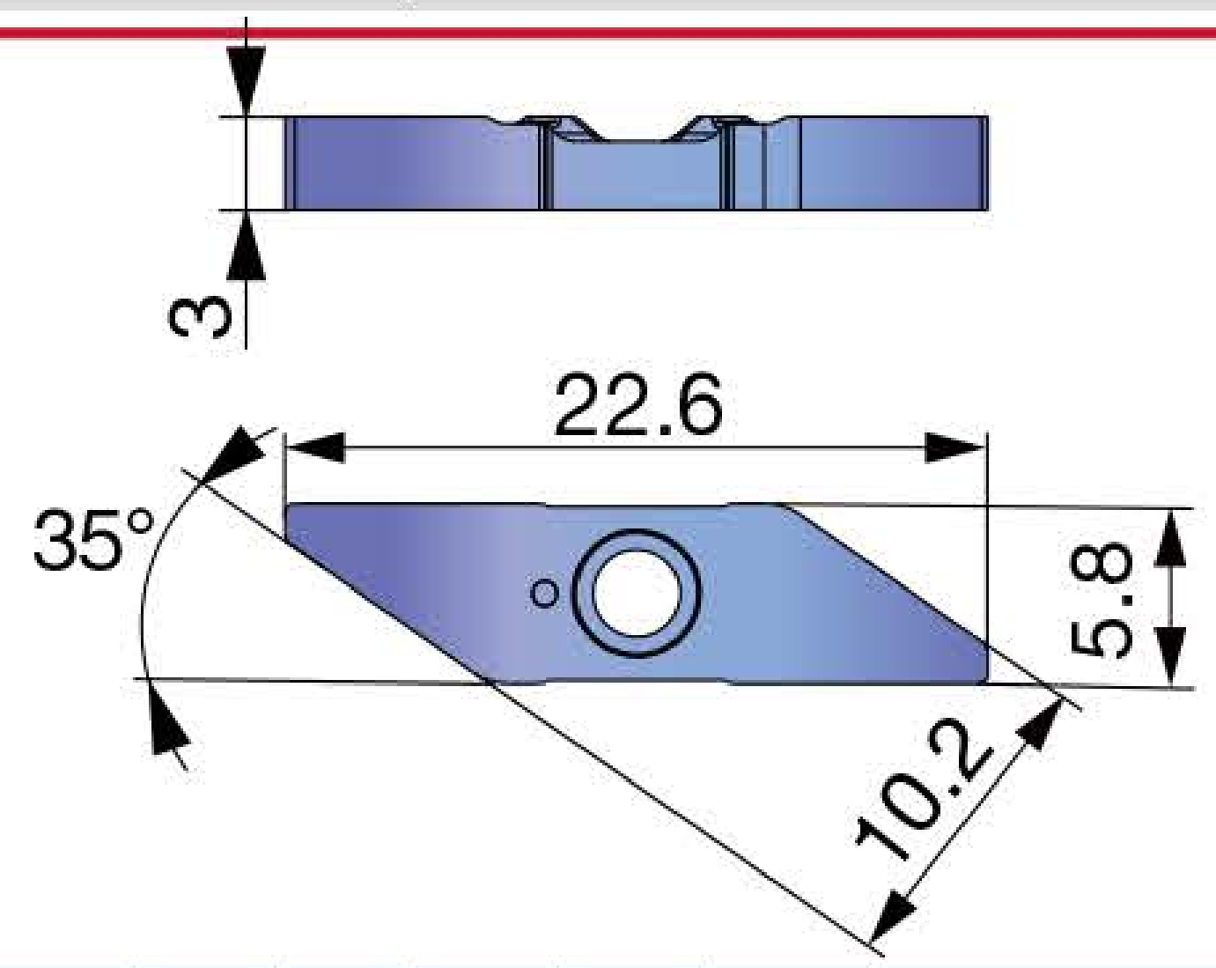
		SH725
P	Steel	★
M	Stainless	★
K	Cast iron	
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	

★ : First choice

Designation	Right hand	Left hand	RE	Coated SH725								INSL	Fig.
JVFN45R0310F	✓		0	●								21	1
JVFN45L0302FL		✓	0	●								21	2

● : Line up

JVNR/L (Semi-finished blanks)



Right-hand (R) shown.

		KS15F
P	Steel	★
M	Stainless	★
K	Cast iron	
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	

★ : First choice

Designation	Right hand	Left hand	Uncoated KS15F								
JVNR30	✓		●								
JVNL30		✓	●								

● : Line up

NEW PRODUCT NEWS

Tungaloy Report No. 556-G

MEGA TECH METAL WORK CO.,LTD

STANDARD CUTTING CONDITIONS

Back turning

ISO	Workpiece materials	Grade	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
P	Low carbon steels S15C, SS400, etc. C15E4, E275A, etc.	SH7025	50 - 180	0.01 - 0.03
P	Carbon steels, Alloy steels S55C, SCM440, etc. C55, 42CrMo4, etc.	SH7025	50 - 180	0.01 - 0.03
P	Free cutting steels SUH22, SUH23, etc.	SH7025	50 - 180	0.01 - 0.03
M	Stainless steels SUS304, X5CrNi18-9, etc.	SH7025	50 - 120	0.01 - 0.03
N	Aluminium alloys A5056, A6061, etc.	SH7025	150 - 200	0.01 - 0.03
N	Copper alloys C2600, C280C, etc.	SH7025	100 - 200	0.01 - 0.03
S	Titanium alloys Ti-6Al-4V, etc.	SH7025	30 - 80	0.01 - 0.03
S	Superalloys Inconel718, etc.	SH7025	30 - 80	0.01 - 0.03

Grooving

ISO	Workpiece materials	Grade	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
P	Low carbon steels S15C, SS400, etc. C15E4, E275A, etc.	SH7025	50 - 180	0.01 - 0.05
P	Carbon steels, Alloy steels S55C, SCM440, etc. C55, 42CrMo4, etc.	SH7025	50 - 180	0.01 - 0.05
P	Free cutting steels SUH22, SUH23, etc.	SH7025	50 - 180	0.01 - 0.05
M	Stainless steels SUS304, X5CrNi18-9, etc.	SH7025	50 - 120	0.01 - 0.05
N	Aluminium alloys A5056, A6061, etc.	SH7025	150 - 200	0.01 - 0.05
N	Copper alloys C2600, C280C, etc.	SH7025	100 - 200	0.01 - 0.05
S	Titanium alloys Ti-6Al-4V, etc.	SH7025	30 - 80	0.01 - 0.05
S	Superalloys Inconel718, etc.	SH7025	30 - 80	0.01 - 0.05

Threading

ISO	Workpiece materials	Grade	Cutting speed *Vc* (m/min)
P	Low carbon steels S15C, SS400, etc. C15E4, E275A, etc.	SH7025	50 - 180
P	Carbon steels, Alloy steels S55C, SCM440, etc. C55, 42CrMo4, etc.	SH7025	50 - 180
P	Free cutting steels SUH22, SUH23, etc.	SH7025	50 - 180
M	Stainless steels SUS304, X5CrNi18-9, etc.	SH7025	50 - 120
N	Aluminium alloys A5056, A6061, etc.	SH7025	150 - 200
N	Copper alloys C2600, C280C, etc.	SH7025	100 - 200
S	Titanium alloys Ti-6Al-4V, etc.	SH7025	30 - 80
S	Superalloys Inconel718, etc.	SH7025	30 - 80

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MEGA TECH METAL WORK CO.,LTD

Parting-off

ISO	Workpiece materials	Grade	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
P	Low carbon steels S15C, SS400, etc. C15E4, E275A, etc.	SH725	50 - 180	0.01 - 0.05
P	Carbon steels, Alloy steels S55C, SCM440, etc. C55, 42CrMo4, etc.	SH725	50 - 180	0.01 - 0.05
P	Free cutting steels SUH22, SUH23, etc.	SH725	50 - 180	0.01 - 0.05
M	Stainless steels SUS304, X5CrNi18-9, etc.	SH725	50 - 120	0.01 - 0.05
N	Aluminium alloys A5056, A6061, etc.	SH725	150 - 200	0.01 - 0.05
N	Copper alloys C2600, C280C, etc.	SH725	100 - 200	0.01 - 0.05
S	Titanium alloys Ti-6Al-4V, etc.	SH725	30 - 80	0.01 - 0.05
S	Superalloys Inconel718, etc.	SH725	30 - 80	0.01 - 0.05

Front turning

ISO	Workpiece materials	Grade	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
P	Low carbon steels S15C, SS400, etc. C15E4, E275A, etc.	SH725	50 - 180	0.01 - 0.03
P	Carbon steels, Alloy steels S55C, SCM440, etc. C55, 42CrMo4, etc.	SH725	50 - 180	0.01 - 0.03
P	Free cutting steels SUH22, SUH23, etc.	SH725	50 - 180	0.01 - 0.03
M	Stainless steels SUS304, X5CrNi18-9, etc.	SH725	50 - 120	0.01 - 0.03
N	Aluminium alloys A5056, A6061, etc.	SH725	150 - 200	0.01 - 0.03
N	Copper alloys C2600, C280C, etc.	SH725	100 - 200	0.01 - 0.03
S	Titanium alloys Ti-6Al-4V, etc.	SH725	30 - 80	0.01 - 0.03
S	Superalloys Inconel718, etc.	SH725	30 - 80	0.01 - 0.03

NEW PRODUCT NEWS

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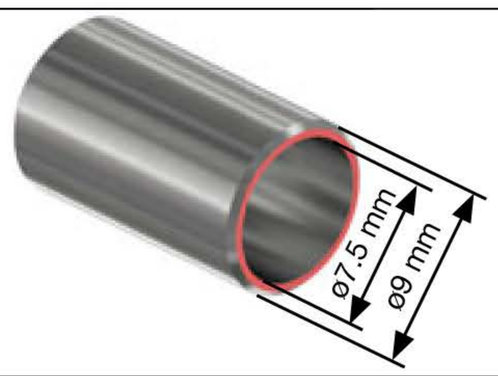
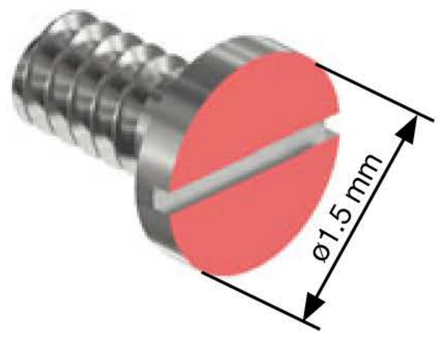
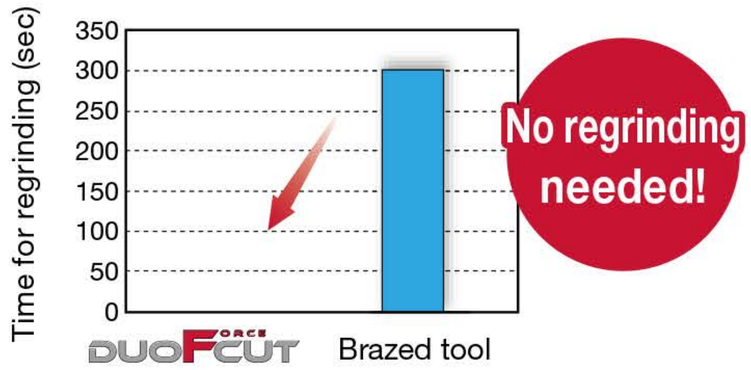
MEGA TECH METAL WORK CO.,LTD

DUOFORCE CUT

PRACTICAL EXAMPLES

Workpiece type		Engine part	Timepiece part
Toolholder		JSXXR0707X05	JSXXR0808H05
Insert		JVPN12R10F000-20	JVPN12R08F000-20
Grade		SH725	SH725
Workpiece material		SUS316L	SK4
			
Cutting conditions	Cutting speed: *Vc* (m/min)	75	50
	Feed : *f* (mm/rev)	0.03	0.01
	Groove width : CW (mm)	1	0.8
	Machining	Parting-off	Parting-off
	Coolant	Oil	Oil
Results		 The use of an indexable **DuoForceCut** tool eliminated the extra costs and lead times for regrinding of brazed tools.	 **DuoForceCut** provided high part quality thanks to its tool rigidity, enabling 1.5 times tool life.

Member IMC Group Tungaloy INDUSTRY 4.0

TUNGALOY ADDFORCE ACCELERATED LINES

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Information

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